

# Selection of reduced MPS pulmonary lesions influences the production of soluble factor in blood

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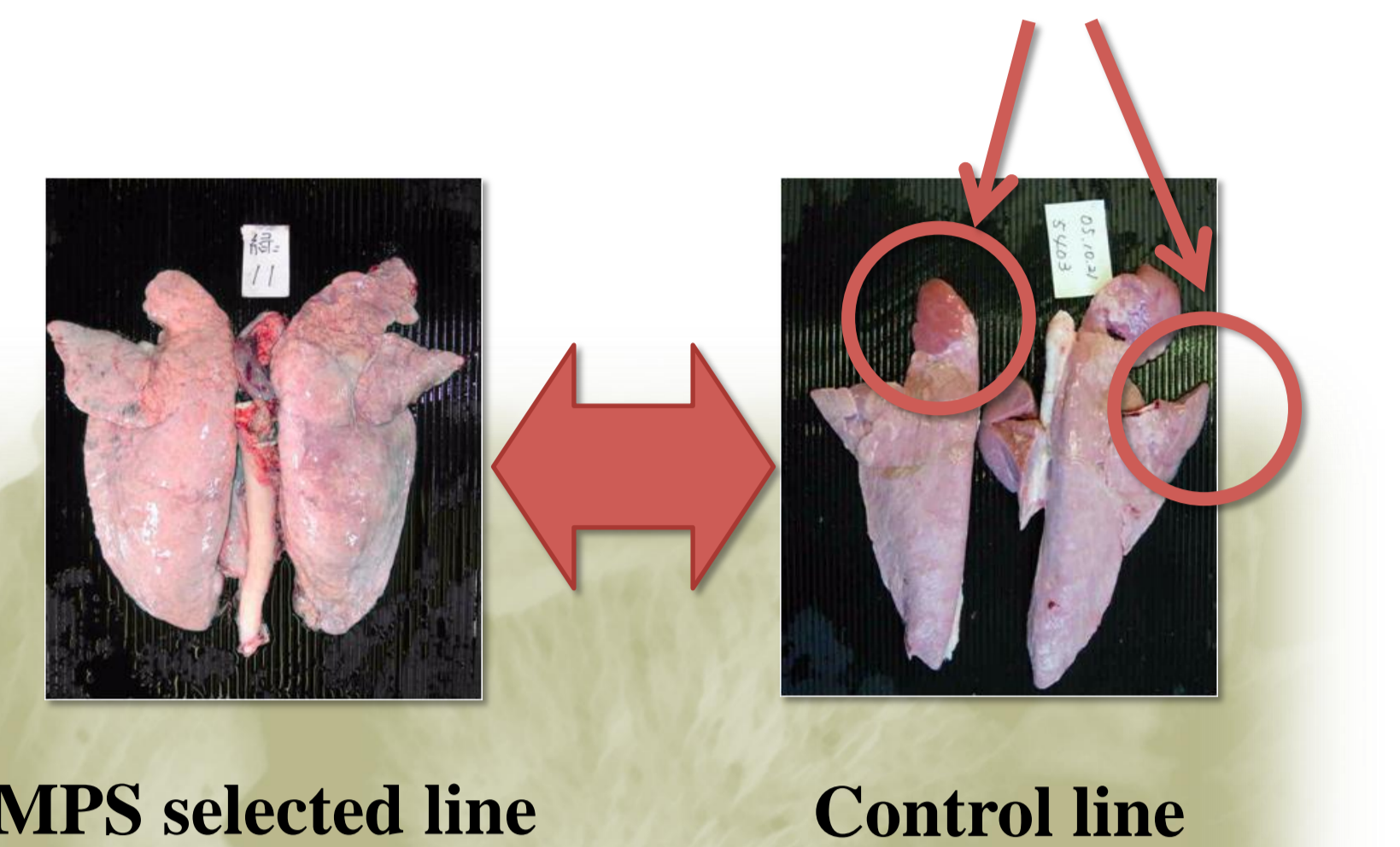
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MPS lesions

## Introduction

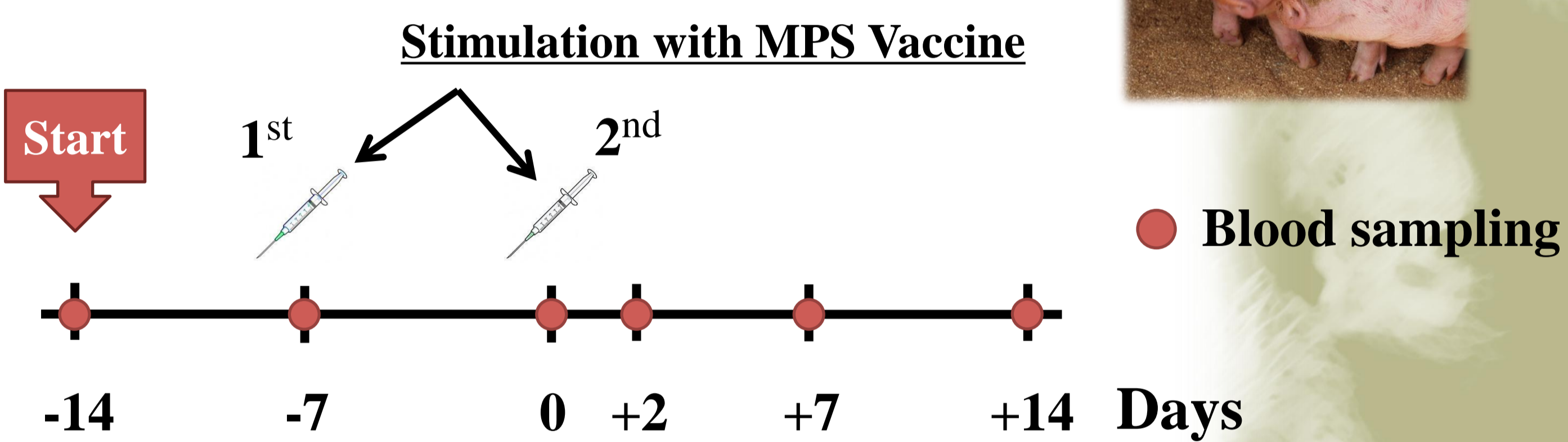
*Mycoplasma hyopneumoniae* (Mhp), the primary pathogen of mycoplasma pneumonia of swine (MPS), is a major cause of economic losses in the swine industry. Breeding for disease resistance is beneficial for preventing the disease. Previously, we established a novel swine line with reduced MPS pulmonary lesions having a different immunophenotype from that of the control group. In this study, we further characterized the selected line by focusing on blood-soluble factors after sensitization with commercial MPS vaccine.



## Materials and Methods

• **Animals :** MPS selected and control line (Landrace pigs, 12 each)  
Mean body weight and age at the start : 65 kg and 16 weeks

• **Experimental schedule :**



• **Immune traits measurements of blood :**

1. Endocrine hormones concentration (RIA)
2. Mhp specific IgG (ELISA)
3. Cytokines
  - 3-1. serum cytokine concentration (ELISA)
  - 3-2. Whole blood mRNA expression (RT-qPCR)
  - 3-3. mRNA expression after in vitro stimulation (RT-qPCR; PBMC were stimulated with antigens)

• **Statistical Analysis :**

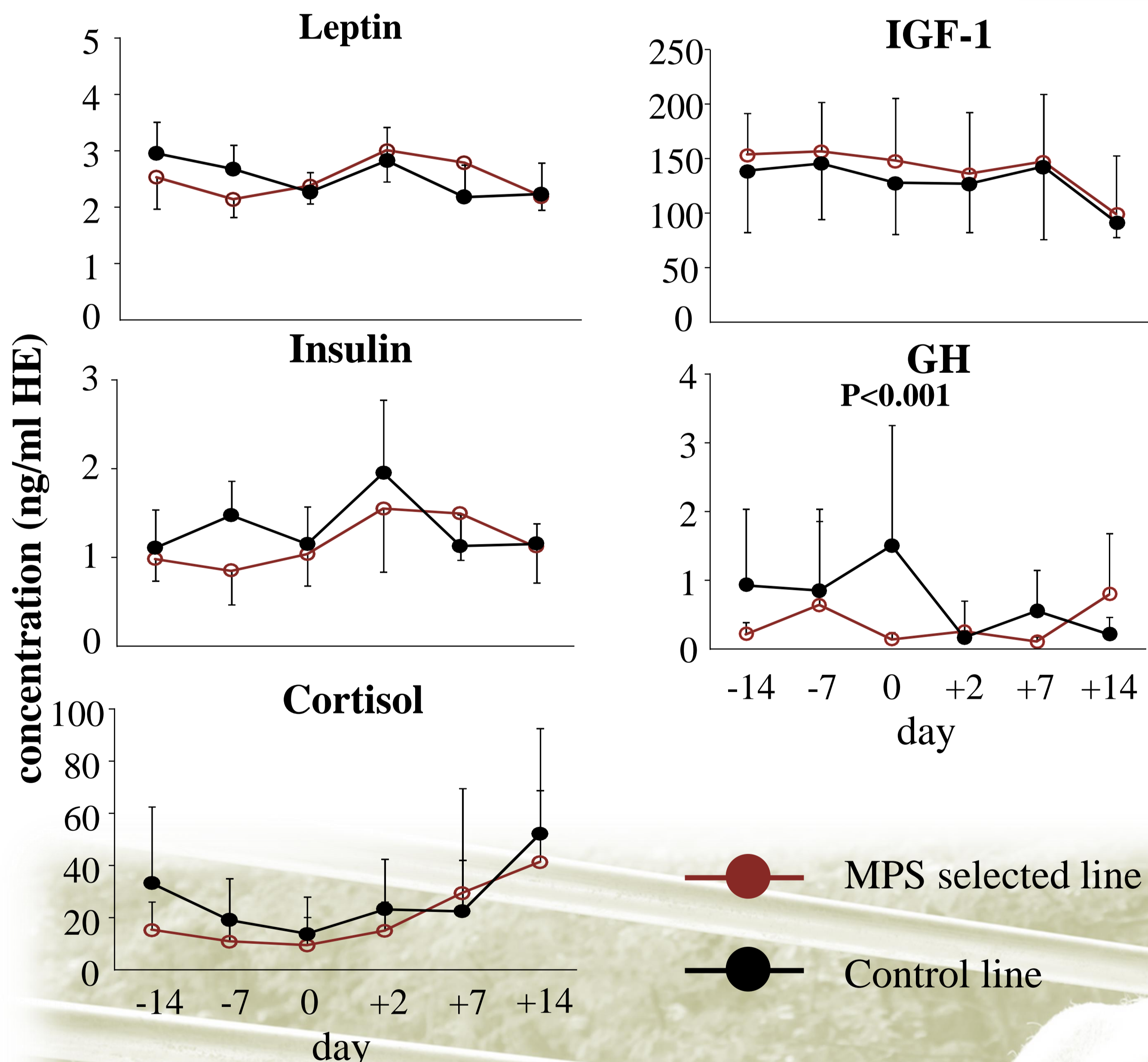
All data were performed using SAS MIXED procedure.

Differences between each line were analyzed using ANOVA.

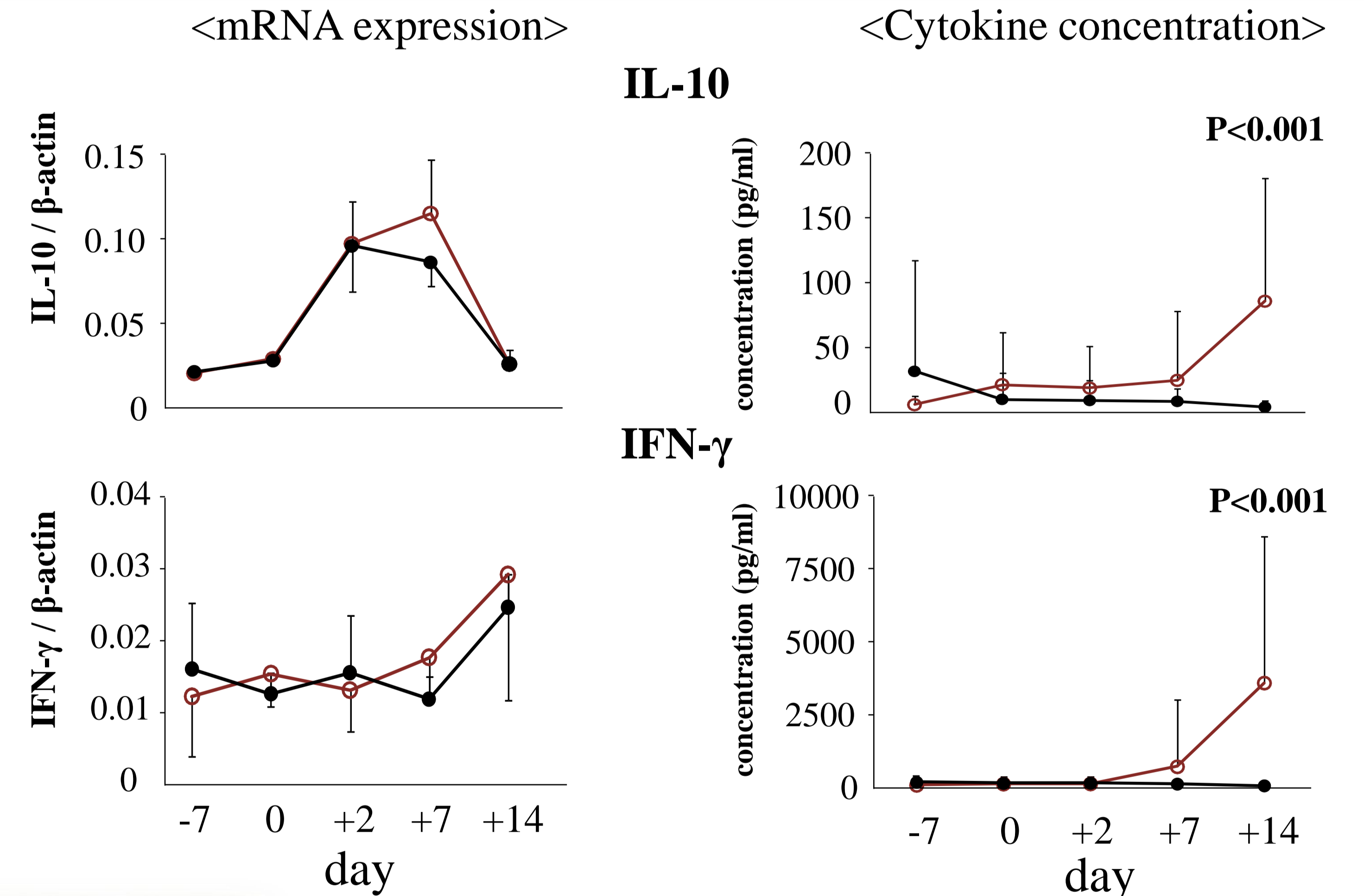
fixed effect : line, day  
random effect : animals

## Result

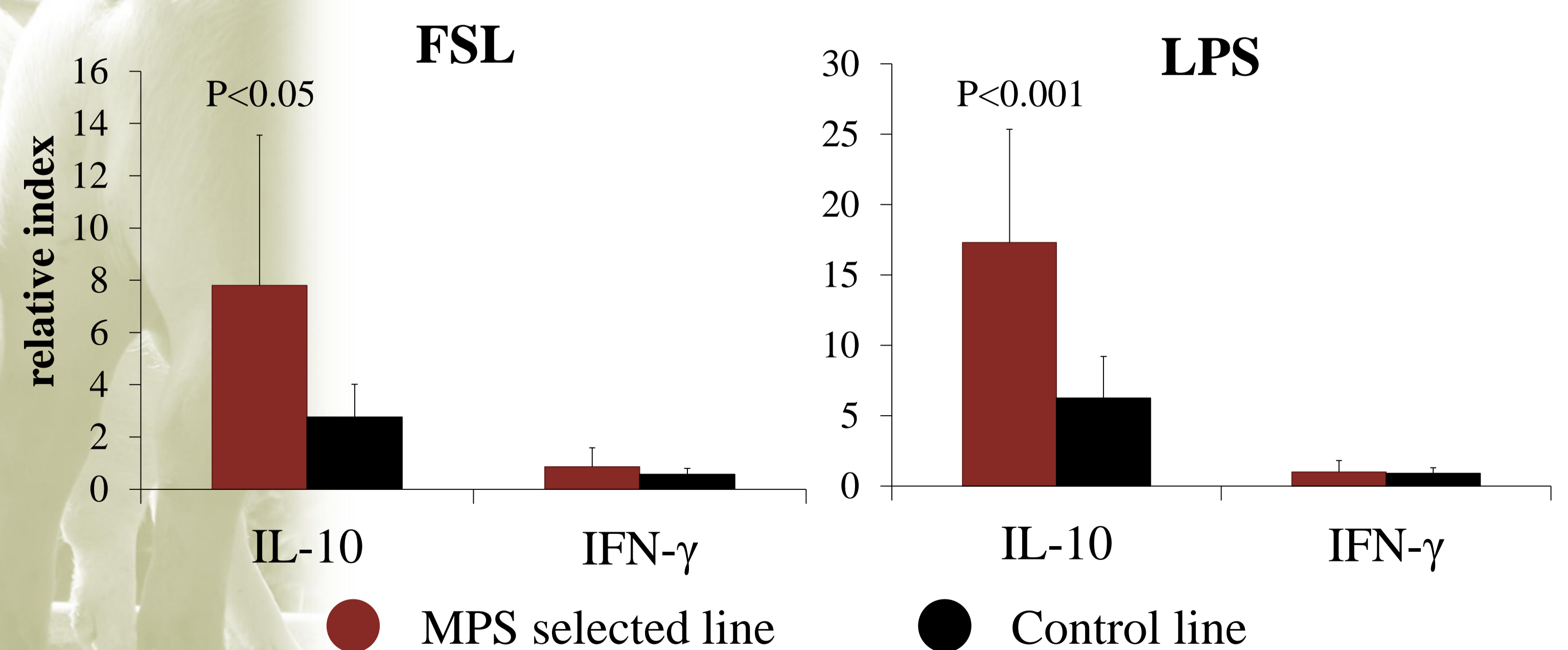
1. Endocrine hormones concentration in blood



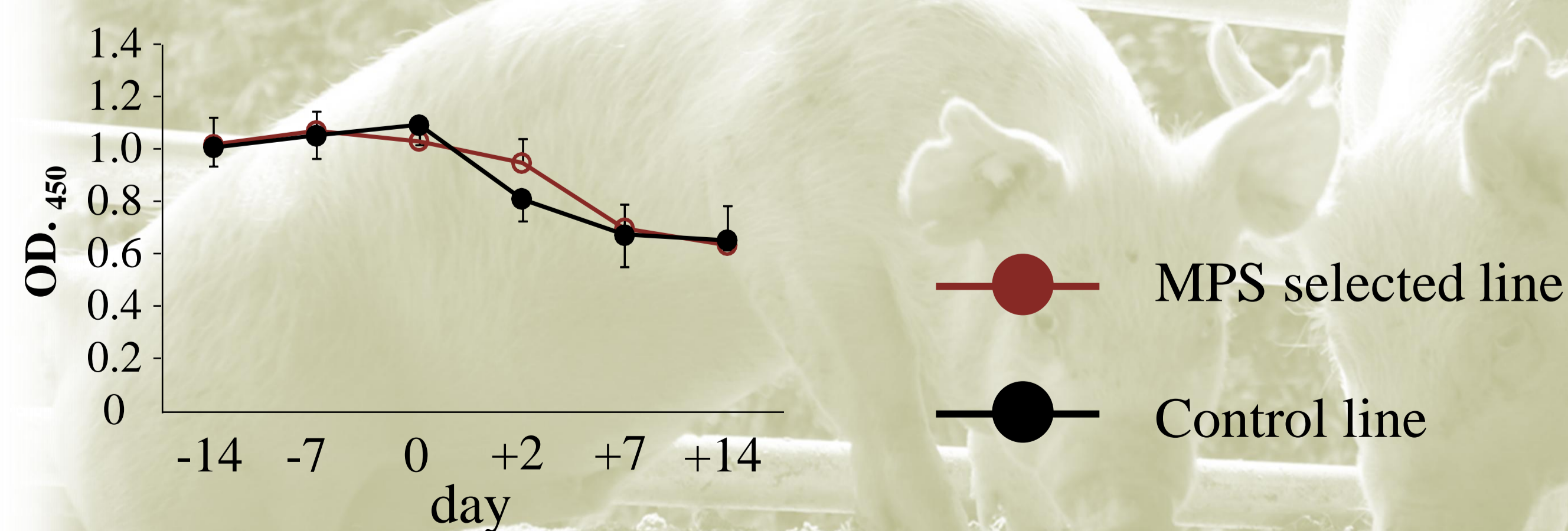
3-1, 2. Cytokine concentrations and mRNA expressions



3-3. mRNA expressions after stimulation with antigens (in vitro)



2. Mhp specific IgG



## Discussion

- GH concentration in blood was increased at day 0 in control line and suggested that control line caused stress response.
- IL-10 and IFN- $\gamma$  concentrations were significantly increased at day +14 in the MPS-selected line and In vitro assay showed that IL-10 expression in the MPS-selected line were higher than control line.
- MPS selected line contracted MPS lesions by highly producing IL-10 called as anti-inflammatory cytokine and reducing ability of acquired immunity.
- IL-10 and IFN- $\gamma$  would be the good candidates for the selection for MPS resistance.