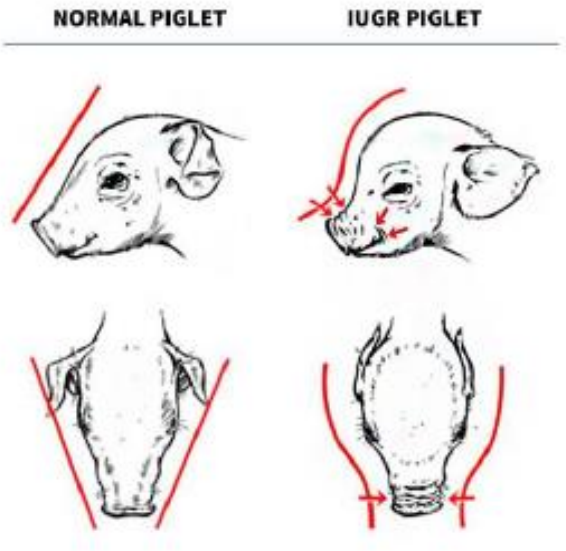
Effect of dietary milk fat and fetal growth restriction on immune development in neonatal piglets

CPH Pig 2021

Ole Bæk
Section for comparative paediatrics and nutrition.

UNIVERSITY OF COPENHAGEN

Milk fat feeding
Study design



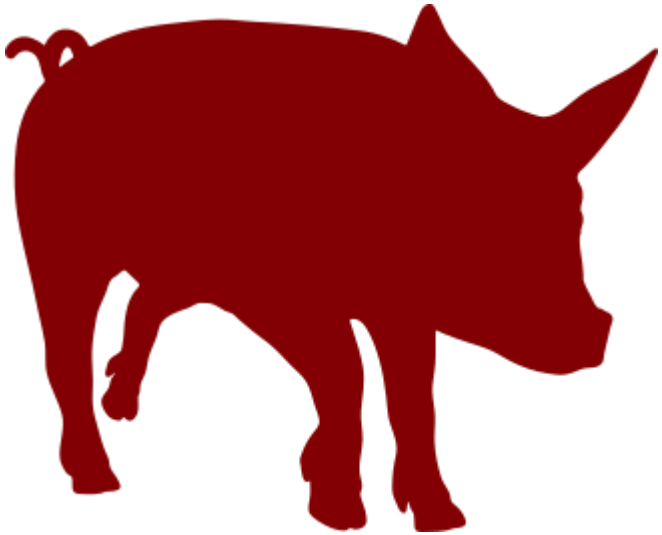
Twoday-old farm born piglets, selected on the basis of birthweight

- Normal birthweight (NBW, n=18)
- Interuterine growthrestricted (IUGR, n=18)

Each group is fed infant formula based on either

- Vegetable fat (VEG, n=9+9)
- Bovine milk fat (MILK, n=9+9)

Reared until day 22.



Milk fat feeding
Endpoints

Immune cells

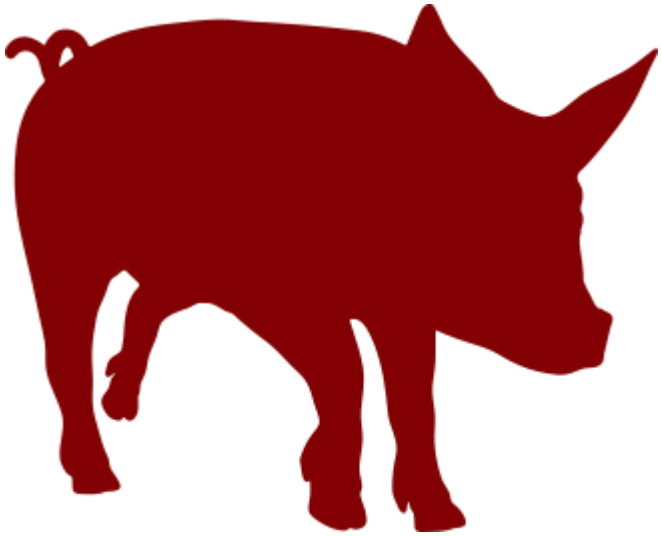
- Neutrophils
- Lymphocytes
- Monocytes
- T cell subsets
- Neutrophil function

Figure legend

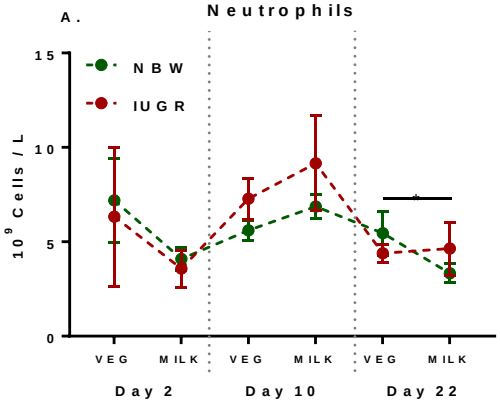
- Effect of diet: *
- Effect of birthweight: ¤

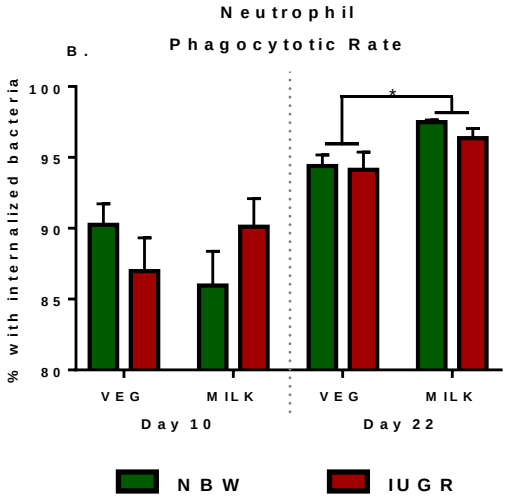
Whole blood stimulation

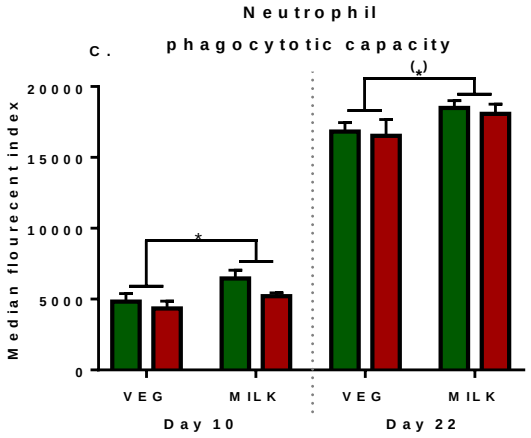
- Cytokine production (TNFα, IL-10)
- Gene expression (Immune/metabolism related)



Milk fat feeding
Neutrophil markers

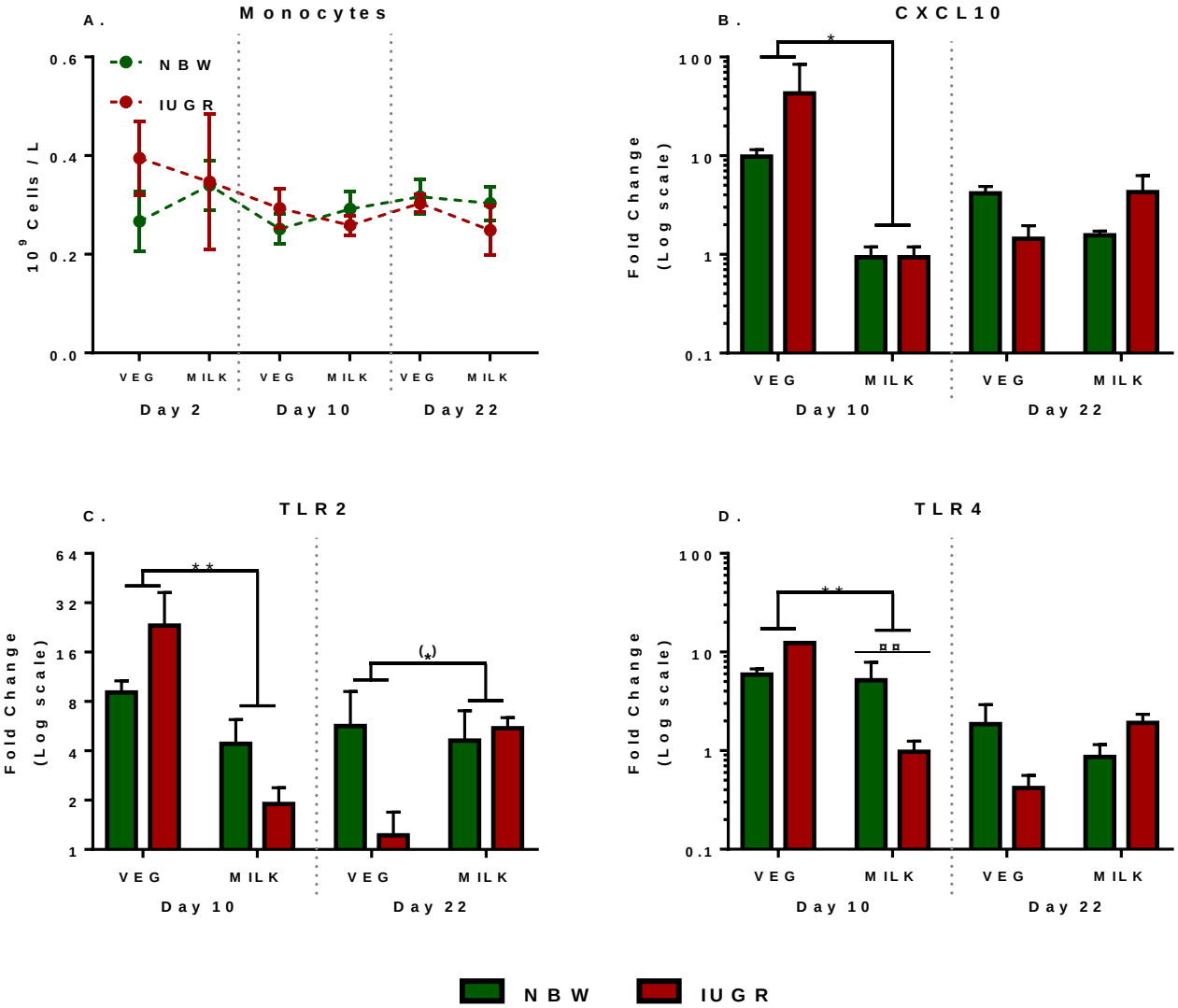






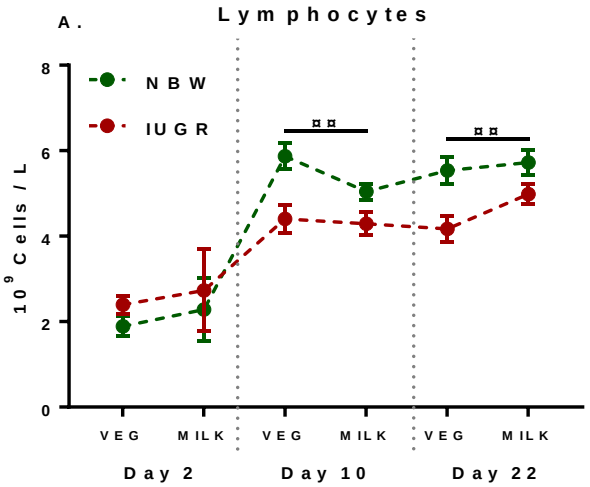
Milk fat feeding

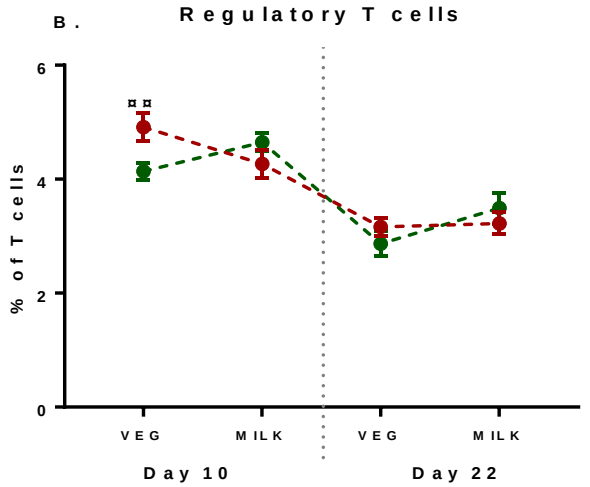
Innate immune markers

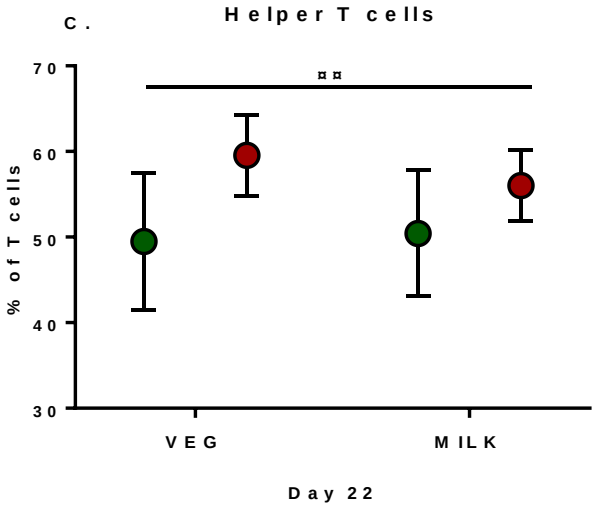


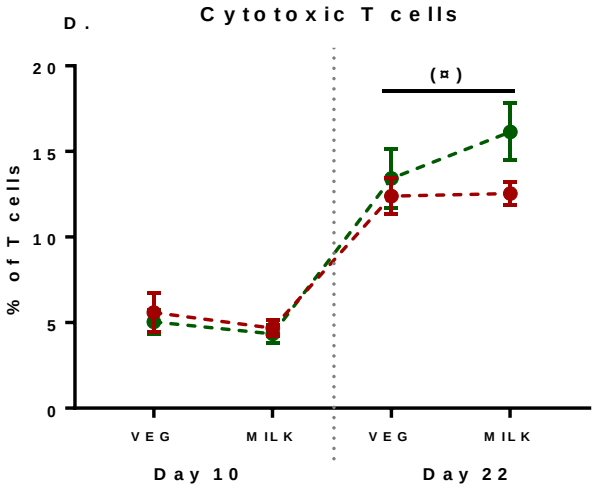
Milk fat feeding

Adaptive immune markes



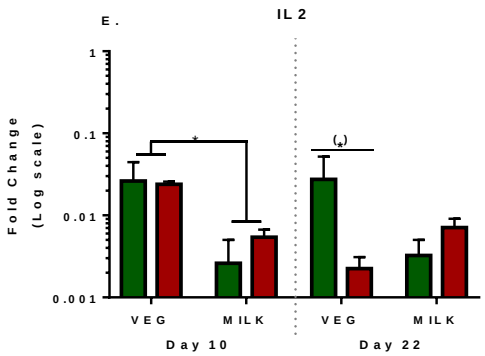


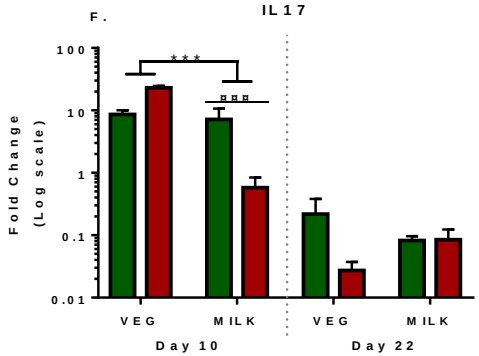


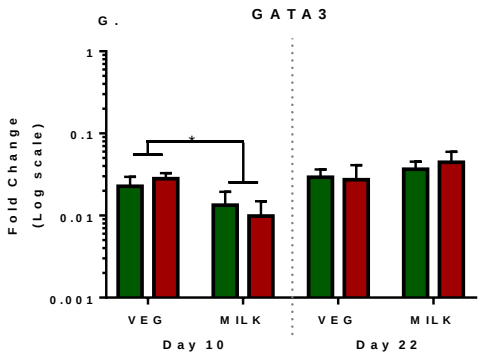


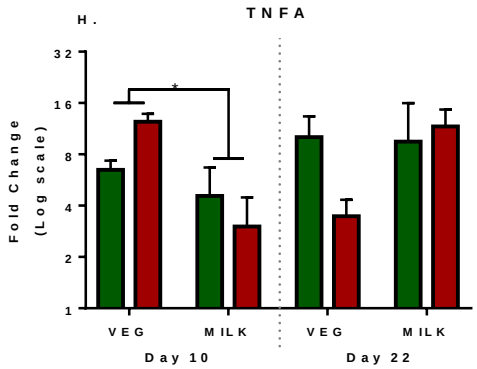
Milk fat feeding

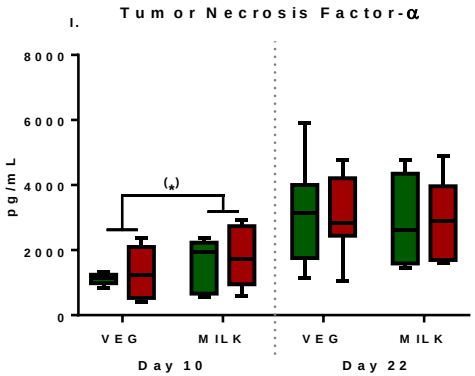
Adaptive immune markes





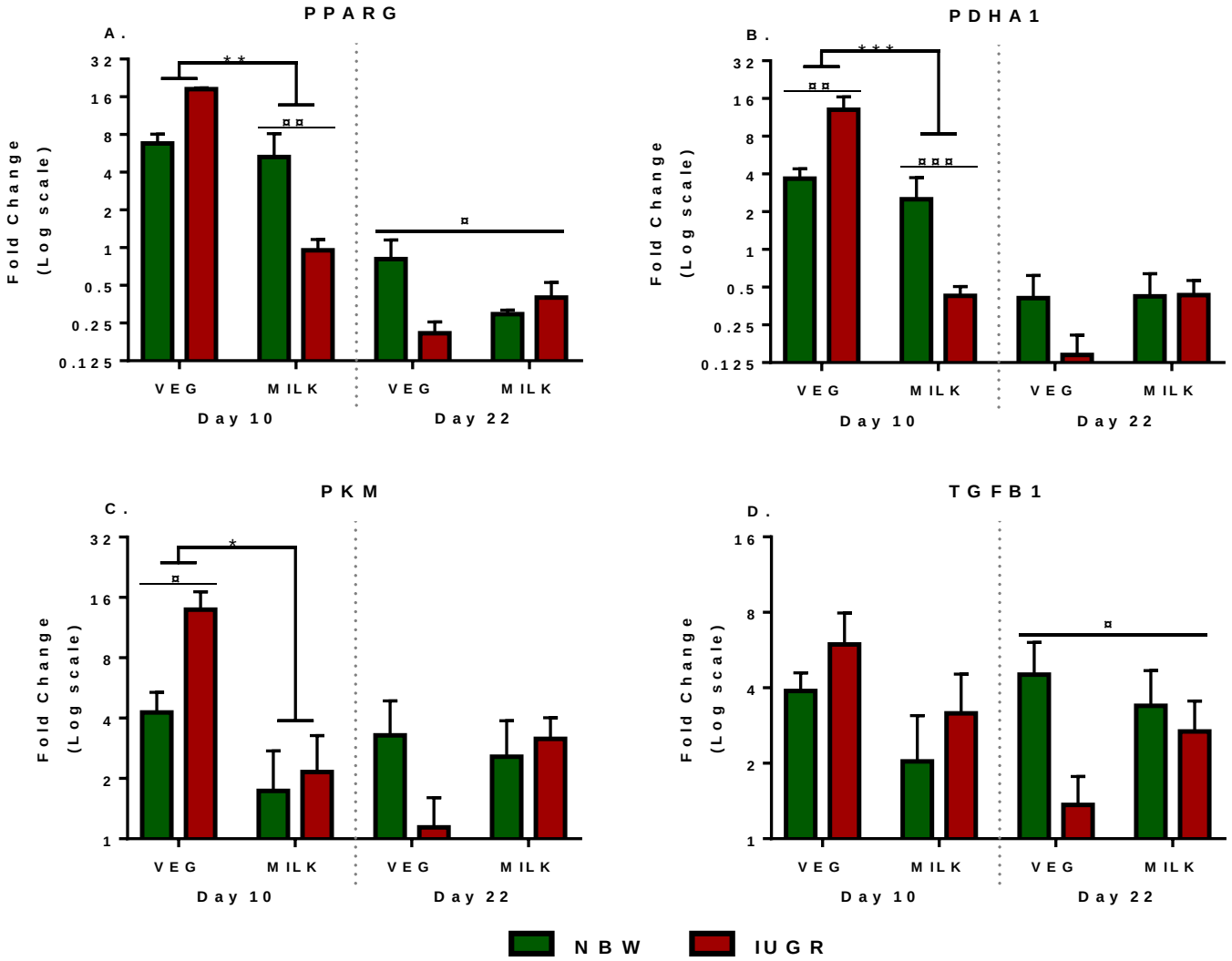






Milk fat feeding

Metabolism related genes



Conclusion

Milk fat feeding

- Less, but more mature neutrophils
- Delayed Th1 polarization
- Less active lymphocytes

Intrauterine growth restriction

- Less lymphocytes, but higher fraction of helper T cells

Few interactive effects of milk fat feeding on IUGR pigs.

Thank you for your time!

Collaborators

- Duc Ninh Nguyen
- Karina Skadborg
- Thomas Thymann
- Charlotte Amdi

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