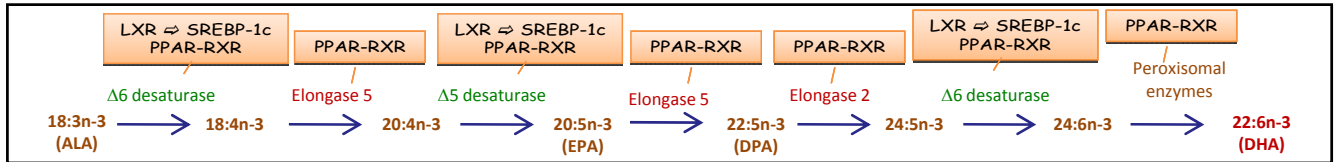


N-3 long chain polyunsaturated fatty acids (n-3 LCPUFA) are essential for human health. Currently, seafoods are the main source of n-3 LCPUFA for human but, considering differences in eating habits, they can hardly be the only source. Thus, in terms of diversification of n-3 LCPUFA intake for humans, n-3 LCPUFA supply from terrestrial animal products, notably beef, could be an alternative source. However, the biosynthesis of n-3 LCPUFA in beef seems limited.

The **Objective** of this study is to identify accurately the limiting steps of n-3 LCPUFA biosynthesis in beef

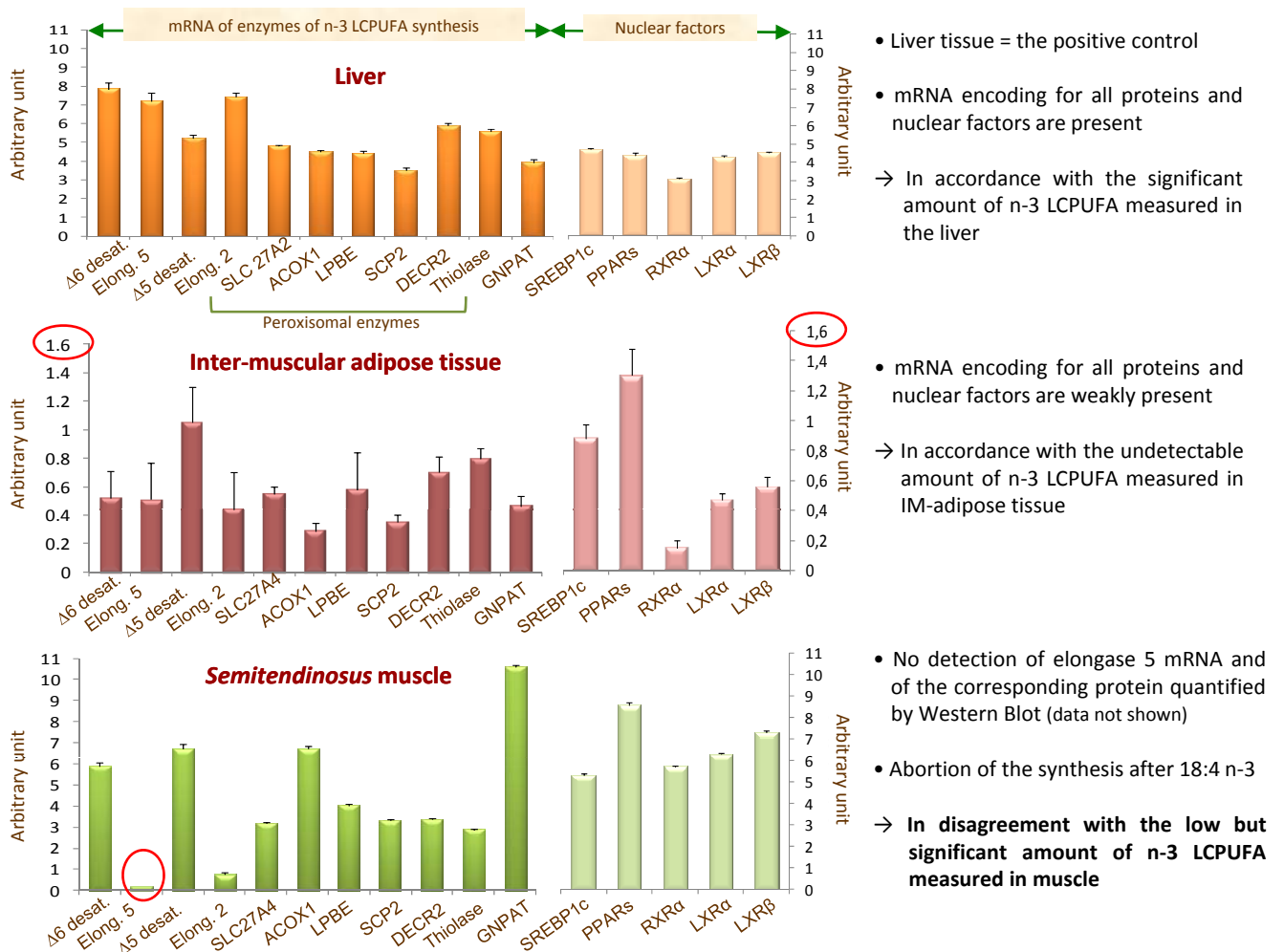


Materials & Methods

- Six Limousin bulls (15-18 month-old) fed a concentrate based diet for 100 d before slaughter from the European Program ProSafeBeef
- Extraction of total RNA from the liver (central role in lipid metabolism), inter-muscular adipose tissue (site of lipogenesis) and *Semitendinosus* muscle (target tissue)
- Quantitative polymerase chain reaction (qPCR) to quantify mRNA abundance of 11 proteins and 5 nuclear factors involved in n-3 LCPUFA biosynthesis



Results & Discussion



Conclusions & Perspectives

- ❖ The *Semitendinosus* muscle is inefficient for the conversion of linolenic acid (18:3 n-3) to n-3 LCPUFA because of the lack of Elongase 5 production
- ❖ Deposition of n-3 LCPUFA in the *Semitendinosus* muscle suggests that these fatty acids were initially synthesized by the liver, and then subsequently taken up by the muscle

Further studies are in progress to examine the relative effect of physiological and/or nutritional factors :

- ✓ on the stimulation of the expression of the enzymes involved in n-3 LCPUFA biosynthesis in bovine muscles
- ✓ on the regulation of n-3 LCPUFA uptake by extra-hepatic tissues (CD36, FATP1, FATP4, FABP3...)