

Figure 2 A

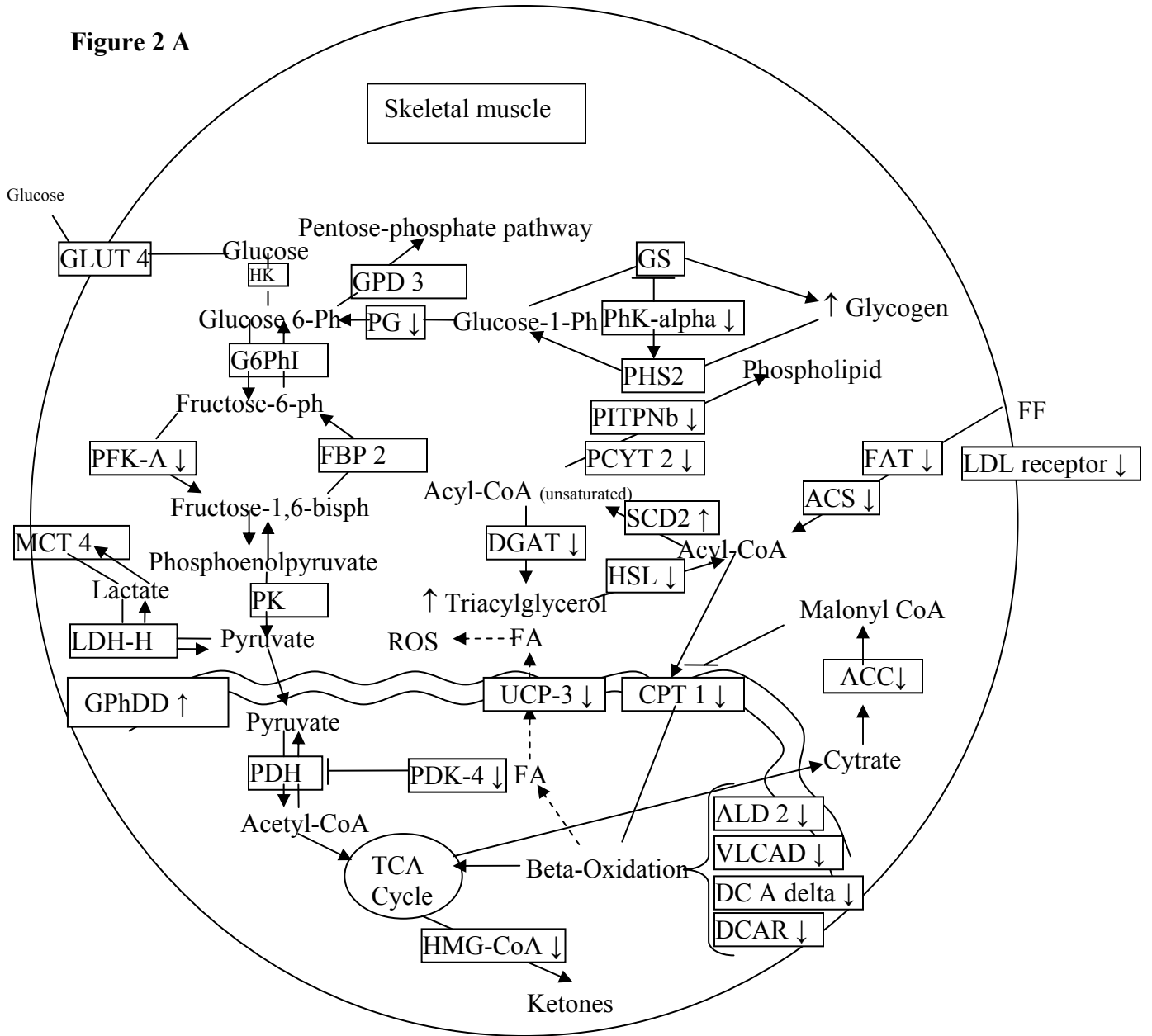


Figure 2 B

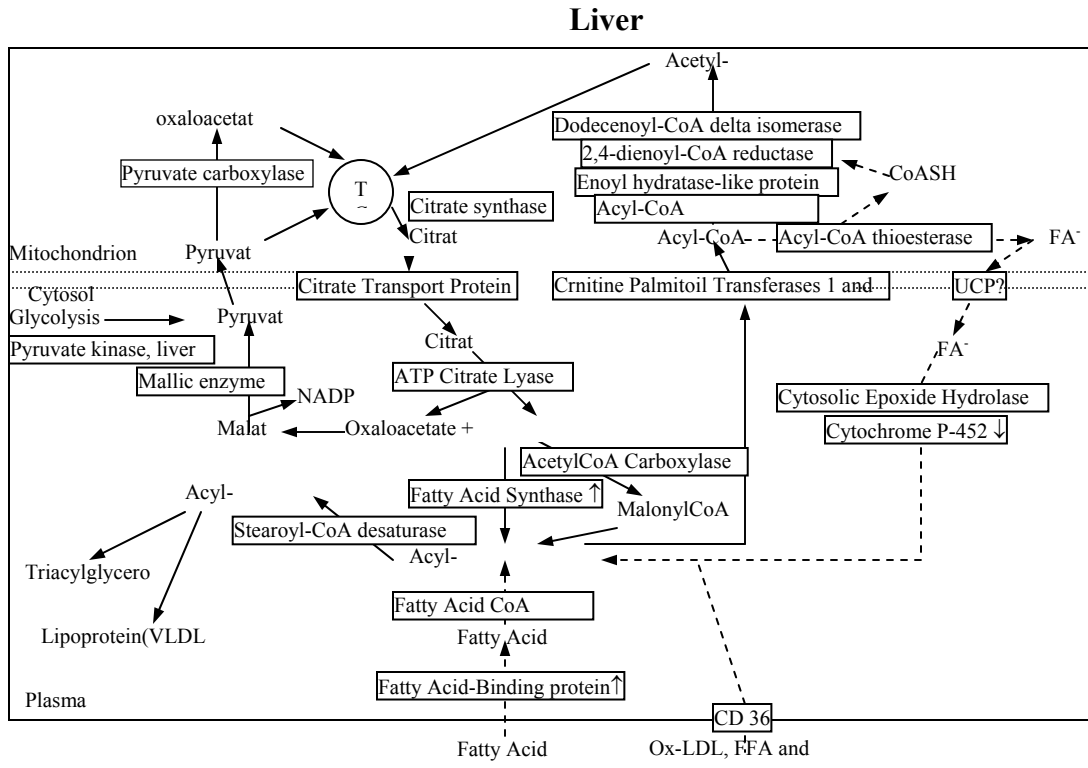


Figure 2 shows the outline of skeletal muscle (A) and liver (B) metabolism to illustrate the changes in gene expression after 5 weeks of energy restriction (ER) in ZDF rats. In skeletal muscle the gene changes indicate a possible accumulation of glycogen and reduction in the metabolism of lipid after ER. Uncoupling protein 3 (UCP-3) was also down regulated. This in accordance with the hypothesis, that UCP-3 could play a role in the regulation of fatty acid ion (FA-) in the mitochondrion. In the liver gene expression of enzyme involved in lipidogenesis were up regulated and enzymes involved in beta oxidation were down regulated. These changes are in accordance with an increased in glycolysis after a decrease in beta oxidation. Even in liver the gene expression data indicate an intact capacity to accumulate triacylglycerol in non diabetic ZDF rats in accordance with the hypothesis that the failure to accumulate fat is associated with type 2 diabetes. \longrightarrow , Indicate stimulation: $---\blacktriangleright$, Indicate possible pathway. ---| , Indicate inhibition. \uparrow , genes up-regulated. \downarrow , genes down regulated. Pathways were made with GenMapp (Gene MicroArray Pathway Profiler, www.GenMAPP.org)